U.S. Department of the Interior – Bureau of Reclamation

SAN LUIS DRAINAGE FEATURE RE-EVALUATION

Meeting Summary
Interagency Workshop
March 5, 2002 – Sacramento, California
Alternatives Formulation Workshop

Reclamation is developing and reformulating alternatives for the San Luis Unit Drainage Feature Re-evaluation. In preparing these alternatives, Reclamation developed a set of guiding assumptions to assist the team in refining the preliminary alternatives and identifying a short list of alternatives for detailed evaluation in summer 2002. Reclamation hosted an all-day interagency workshop to discuss the alternatives formulation process and solicit input from federal and state agencies.

Meeting Purpose and Objectives

- Review and discuss approach to alternatives formulation
- Review current alternatives
- Obtain input to make alternatives complete
- Present assumptions for each alternative
- Discuss specific factors for making alternatives complete
- Identify areas for improvement and optimization

Project Overview and Alternatives Refinement Process

Jason Phillips, Reclamation, provided an overview of the project. A brief review of the court order and a timeline showed that Reclamation is in the process of refining and evaluating alternatives. Jason briefly covered the process that was used to formulate alternatives.

The group provided the following comments and questions about the project scope:

- What is the drainage area to be served? Which water districts are included? Would Reclamation serve all those currently using the San Luis Drain?
- How can we comply with spirit of NEPA as well as court order? NEPA says to include all reasonable alternatives, so Reclamation should follow those guidelines.
- Reclamation should consider potential beneficial re-use aspects as part of this analysis.

- How much research is going into deep well injection? Dry holes are present in the San Luis Unit. Reclamation should examine these as part of the analysis.
- Reclamation should rethink the use of the term "treatment." This might not be best terminology to classify actions taken after collection.

Ocean Outfall

Workshop participants provided comments and suggestions regarding the options and alternatives to convey drainage water for disposal in the ocean. The comments generally group into categories including location, regulations and legal issues, and other suggestions.

Outfall Location

- Reclamation should review existing wastewater outfalls and determine if the drainwater could be incorporated into those disposal sites.
- Reclamation should review existing outfall permit requirements, such as Orange County, to determine what requirements are likely to apply for this outfall.
- Reclamation can determine an appropriate depth for an outfall dependent on the composition of drainwater transported through the pipeline. Reclamation should also study the potential for disposing of dry material to the ocean (transport by barge after treatment). Deep water or dry disposal might avoid local coastal concerns.
- A reverse osmosis plant near a coastal community could provide treated water for various uses and the remaining brine would go to the ocean.
- Bioaccumulation is a concern for certain elements that may accumulate in the ocean environment. Reclamation should model constituent elements to estimate any potential threats. A monitoring program would also be necessary if an ocean outfall were the selected alternative.
- Reclamation should consider other outfall locations, including potential locations south of the Monterey Bay Marine Sanctuary.
- Reclamation will need to analyze the potential impacts on the marine sanctuary area to accomplish the following:
  - Demonstrate no long-term impacts
  - Receive NPDES state permit
  - Receive authorization from NOAA

Regulations and Legal Issues

- When will political and legal factors be figured in? Reclamation should consider the potential for litigation filed by environmental interests if project includes disposing drainwater or by-products outside of the San Luis Unit.
- Reclamation should verify any State legislation that may impede the installation of an outfall facility.

- Reclamation should collect information on any local ordinances such as the Estero Bay city ordinance and the coastal zone management plan.

Other Suggestions

- Representatives from the National Marine Fisheries Service (NMFS) should be part of these workshops
- Reclamation should meet with local groups and agencies to learn of local ordinances and projects that may influence the potential for an outfall.
- The power cost assumption need further explanation. The cost for power in California is expensive. Where will power supplies to operate the drain come from and how much will it cost?

Delta Outfall and Selenium Treatment

Workshop participants provided comments and suggestions regarding the options and alternatives to convey drainwater for disposal in the Delta. The comments generally group into categories including regulations, project scope, selenium, and other suggestions.

Regulations

- Reclamation should meet with local governments and the Regional Water Quality Control Boards to determine local regulations

Project Scope

- Reclamation should identify potential locations for regulating reservoirs.
- The CALFED Science panel focuses on research in the Delta and should be engaged to review the methods and outcomes of the re-evaluation effort and any associated modeling.

Selenium

- Reclamation should consider stricter guidelines for disposal of selenium. The allowed level of selenium in discharge is an issue in some particular areas of the Delta.
- Reclamation must consider the Endangered Species Act and selenium traces detected in some endangered/threatened Delta species. The bioavailability of the selenium is also of concern so Reclamation must consider the form (organic vs. inorganic).
- Broadview Water District has demonstrated a flow through system that uses hay bails to remove selenium. This system has shown to reduce selenium levels in water.
- Reclamation should explore potential absorption technology systems for selenium.
- Available technologies must be evaluated for ability to bring the selenium concentration to 5 ppb. Then the cost for treatments must be analyzed for concentration level of initial drainage water will affect the cost of treatment.

- Reclamation must consider any treatment by-products and how those materials will be handled.

Other Suggestions

- Reclamation should study an ocean outfall alternative that would extend an outfall pipe from the Delta area through San Francisco Bay to the ocean off San Francisco.

Landfill

The agency workshop participants provided comments and suggestions regarding the options and alternatives to reduce and treat drainwater to achieve landfill disposal. The comments generally group into four categories, evaporation, reverse osmosis, selenium treatment, and other suggestions.

Evaporation

- Evaporation options should include enhanced evaporation techniques including solar evaporators and solar ponds, which could potentially generate energy.
- The team should consider and include the cost of disposal from the evaporation ponds to landfill.
- For the Tulare evaporation ponds, which are about 3,100 acres, the closure plan at the end of the 40-year operation includes a 600-acre landfill.

Reverse Osmosis (RO)

- The team should consider out-of-valley use (including the Imperial Valley and the Salton Sea) of the RO product water, either by direct use or by exchange.
- The team should locate an RO facility or thermal evaporation facility near existing or planned power plants where Reclamation could use waste heat and the power plant could use the RO product water.
- The team should examine if reuse could be used to further reduce the brine concentrate from the RO facility before it goes to an evaporation pond or other drying facility.
- The team should examine if the RO facility could be used to treat the drainwater only to a level to meet irrigation needs. The team explained that RO product water would always be the same, very high quality. The variable in the RO treatment process is the concentration of the brine (higher levels treatment concentrate the brine and produces more product water).

Selenium Treatment

- Participants discussed and provided some initial guidance to the team regarding the assumptions for mitigation areas for evaporation ponds. Mitigation areas will be required as compensation for wildlife impacts and as alternate areas to attract wildlife away from ponds. Generally, mitigation would be required for selenium influent concentrations between 2 ppb and 1,000 ppb. The ratio of mitigation to evaporation pond area will vary depending on the

selenium concentration. Existing mitigation ranges from 10:1 to 0.1:1 The following are some initial guidelines for the team to use in sizing facilities and mitigation:

  - Rainbow Ranch (200ppb) = 1:1 mitigation
  - Tulare basin (15ppb) = 0.1:1 mitigation

- The team should consider an approach similar to the Rainbow Report – Use enhanced evaporation techniques (and avoid the use of standard evaporation ponds) when the selenium concentration is above a specified level
- The team should clarify the assumptions regarding selenium alteration in the ponds. Research is underway attempting to understand the fate of selenium in large evaporation ponds.
- The team should consider using shrimp in evaporation ponds to uptake selenium

Other Suggestions

- The team should consider the feasibility of using a pipeline to transport the drainwater to the Salton Sea.

Drainage Management

Workshop participants provided comments and suggestions regarding drainage management options. The comments generally included land retirement, source control, and other suggestions.

Land Retirement

- Reclamation must consider other concurrent projects occurring in the area to determine areas of overlap and ensure no conflicts (e.g., Westside Integrated Resources Program, Westlands Water District).
- When determining cost of land for retirement, Reclamation should consider the price of land plus any costs to maintain the property.
- Reclamation should clarify how 200,000-acre land retirement in Westlands Water District would affect drainage need.

Source Control

- Reclamation should consider an incentive-based approach to drive source control. Set limits and let farmers and water districts determine how to reach those goals. Responsibility should be shared between the farmers and the water districts. The farmers implement the actions while the water district will oversee.
- Reclamation should determine whether to base drainage limits on concentration or pounds of salts.

Other Suggestions

- Reclamation should develop a better map designating groundwater levels in the San Luis Unit (Map 3.1 from Preliminary Alternatives Report).

Workshop Participants

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